

AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph 12 with the following rewritten paragraph 12:

[12] One common disadvantage among these reports is that desalting could not be performed before loading the analytes into a 2nd column when the effluent from 1st column requires salt containing buffers. Many choices for a second analytical chromatographic mode are incompatible with salt buffers for optimal separation. Additionally, because mass spectrometry is frequently used as a detector to provide sensitivity and selectivity, the samples (or solutions) containing non-volatile salts are incompatible with optimal performance. Deposition of salt interferes with electrospray ionization and transfer of the vaporized ions into the mass spectrometer.

Additionally, US Patent Nos. 5,117,109 and 5,449,902 show unique valve mechanisms adapted to liquid chromatograph systems using single or plural tapping columns. Although these patents focus on an automated sample pre-treatment technique, mainly such as dilution, extraction or desalting before liquid chromatograph mass spectrometry, neither describes nor assumes a multi-dimensional chromatographic separation technique having orthogonal separation modes. US Patent No. 5,117,109 discloses the valve configuration using a single trapping column with plural sample tubes in which elutants from a 1st analytical column can be collected. In fact, it is arduous for the configuration disclosed in this Patent to be adapted to a multi-dimensional chromatographic separation system from the point of view of seamless multi-dimensional chromatographic profiling, since this configuration has just one trapping column and sample trapping tubes do not have enough capacity to collect all elutants from the 1st

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analytical column. US Patent No. 5,449,902 discloses an improved valve mechanism on which plural trapping columns are mounted and several types of valve and flow path configurations for sample pre-treatment. But, these systems do not have two (or more) independent analytical columns, nor are they intended for use in a multi-dimensional separation system.